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INTRODUCTION.

This REVIEW treats generally the meteorological conditions of the United States and Canada for May, 1889, and is based upon reports of regular and voluntary observers of both countries.

On chart i the paths of the centres of eight areas of low pressure are shown; the average number traced for May during the last fifteen years being 8.8. This chart also exhibits the paths of the centres of nine depressions traced over the north Atlantic Ocean; the limits of fog-belts west of the fortieth meridian, and the distribution of icebergs and field ice during the month. The areas of high and low pressure and north Atlantic storms are discussed under their respective headings.

Chart ii exhibits the distribution of mean atmospheric pressure and temperature and the southern and western limits of freezing weather for the month. The mean temperature was below the normal over a greater portion of the interior and southern parts of the country, the departures below the normal being small. In other districts the month was generally warmer than the average May, the greatest departures above the normal being shown in the Canadian Maritime Provinces, where they exceeded 6°. At a number of stations east of the Mississippi River, in Texas, and Washington Territory, the maximum temperature exceeded the highest May temperature recorded during the periods of observation, while at several stations in the Southern States, and from Texas northward to the British Possessions the lowest temperature recorded for May during the periods of observation was noted.

Chart iii shows the distribution of precipitation for May, 1889. The precipitation was generally in excess of the normal over the northern half of the country from the Atlantic to the Pacific. The most marked excesses in precipitation occurred on the middle Pacific coast, where the rainfall was about 250 per cent. above the normal amount for May, and in the middle Atlantic states, where it was about 50 per cent. in excess of the May average. The greatest deficiencies occurred in the southern plateau region, where but about 6 per cent. of the usual amount of rain for the month fell, and in the Rio Grande Valley, where the rainfall equalled about 20 per cent. of the May average. Marked deficiencies also occurred in the Gulf states and Florida. The exceptionally heavy rains and resultant floods of the last two days of the month in sections of the middle states form the subject of extra charts and tables and are specially discussed in this issue of the REVIEW. A deficiency of rainfall caused serious droughts in sections of the Southern States.

In the preparation of this REVIEW data from 2,535 stations have been used, classified as follows: 176 Signal Service stations; 122 monthly registers from United States Army post surgeons; 1,712 monthly registers from state weather service and voluntary observers; 24 Canadian stations; 169 stations through the Central Pacific Railway Company; 332 marine reports through the co-operation of the Hydrographic Office, United States Navy; marine reports through the "New York Herald Weather Service;" monthly weather reports from the local weather services of Alabama, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New England, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Texas, and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for May, 1889, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on chart ii by isobars. The difference between the mean pressure for May obtained from observations taken twice daily at the hours named and that determined from hourly observations varies at the stations named below, as follows: At Washington, D. C., Philadelphia, Pa., New York, N. Y., Boston, Mass., Saint Louis, Mo., and Chicago, Ill., the mean of the 8 a. m. and 8 p. m. observations was higher by .009, .008, about .009, .006, .002, and .001, respectively, while at San Francisco, Cal., the mean of the observations taken at these hours was about .016 lower than the true mean pressure.

The mean pressure for May, 1889, was highest along the east Gulf coast and over Florida, where it rose above 30.05, the highest mean reading, 30.07, being reported at Mobile, Ala. Over South Carolina, Georgia, Tennessee, the east Gulf states, Arkansas, Louisiana, eastern and southeastern Texas, and the northern California coast the mean pressure was above 30.00. The mean pressure was lowest over southern Nevada and the adjoining part of California, where it fell below 29.80, the lowest reading, 29.78, being reported at Keeler, Cal. A trough of low mean pressure, within which the values varied from 29.80 to 29.90, extended from the lower Colorado valley northward over the plateau and Rocky Mountain regions to the Saskatchewan Valley. The mean pressure was below 29.90 in the lower Saint Lawrence valley.

Compared with the pressure chart for April, 1889, an increase in pressure is shown over the Gulf and south Atlantic states, Florida, at stations on the middle Atlantic and southern New England coasts, and over southern Nova Scotia; elsewhere over the country there has been a decrease in pressure. The greatest increase in pressure was noted on the North Carolina coast, where it amounted to .05, and the greatest decrease, about .10, in the British Possessions north of Dakota, and in the lower Missouri valley. In April the mean pressure was highest along the Pacific coast north of the thirty-fifth parallel, while for the current month the highest values were reported on the middle coast of the Gulf of Mexico. The area of lowest mean pressure for the current and the preceding